Johnson (1993)

STREAM: Dorsey (Dorsea) Creek

DRAINAGE: Jarbidge River (Idaho)

STATE WATER CODE: 1131

GAWS COMPUTER NO.: 170501,05,155,035,015

SURVEY DATES: August 19,24 and 25, 1992

REPORT DATE: May 21, 1993

WRITTEN BY: Gary Lee Johnson

SURVEY METHODOLOGY: The U.S. Forest Service Region 4, Level III Fisheries Habitat Survey Method (March, 1989) was utilized at five Sample Sites (SS) spread somewhat equidistant throughout the Humboldt National Forest portion of stream. Each SS was preplotted on the U.S. Geological Survey 7.5 min. topographic map of the area.

The first 100 ft. at each SS was sampled for fish using a one-pass effort with a Dirigo backpack electroshocker. Beaver ponds located below the Forest Boundary were observed for fish life. Aquatic macroinvertebrate types and relative abundance were assessed following random stream and substrate inspection at each SS. Habitat transects were placed 50 ft. apart. Stream discharge was calculated for each SS using timed float, velocity estimates and water width and depth measurements over a 1.0/1.5m length of uniform stream.

LAND OWNERSHIP AND ACCESS: The upper 3.3 mi. of Dorsey Creek lies within the Jarbidge District of the Humboldt National Forest. The stream channel continues another 3.4 mi. in Nevada and 11.4 mi. in Idaho. Percent stream ownership is as follows:

USFS	- 16.85 %
Private	- 30.34 %
BLM	- 47.19 %
State (ID)	- 5.62 %

The main Diamond A road crosses Dorsey Creek at a point about 1.3 mi. inside Nevada. Access to the Forest portion of stream stems from two points off the main road and each road is about 2.0 mi. long. One route accesses Dorsey Creek 0.7 mi. above the Forest Boundary and the other route crosses the stream at the confluence of the headwater forks located about 2.2 mi. above the Forest Boundary. Jarbidge is located about 18.0 mi. from the Dorsey Creek access road via the Deer Creek Grade. Jarbidge town is about 102 mi. N-NE of Elko on roads subject to closure during periods of snowpack. It is common to have snowdrifts block access over mountain passes well into June during normal snowfall years. From Wildhorse Reservoir located about 65 mi. North of Elko, the road to the Diamond A Desert is 31.0 mi. long via Waterlog Summit which is

usually impassable during periods of snowfall (November through May).

WATERSHED DESCRIPTION: Dorsey Creek is a north by northeasterly flowing stream within a 3.566 sq. mi. drainage on the Forest. There are two unnamed tributary streams to Dorsey Creek. The 2.0 mi. long tributary stream to the East of the main stream is wholly within the Forest. The unnamed tributary to the West of the mainstem is about 5.8 mi. long with only the two head drainages and 0.7 mi. below the forks located on the Forest. The head basin peak elevations above Dorsey Creek range from 8277 ft. to 7252 ft. The one named peak is Bearpaw Mountain which is on the Forest and about a mile west of where Dorsey Creek leaves the Forest. Valley form was variable due to differing valley bottom widths (33 - 322 ft.) within the Forest portion of stream however, valley sideslopes were mostly moderate and averaged 36 %.

Upland vegetation within the drainage consisted primarily of mountain brush (49 %) dominated by sagebrush and aspen (26 %). Understory vegetation (18 %) appeared to be dominated by grasses although, forbs were also present. The parent geology of the upper drainage is granitic and dioritic rocks with a small area of silicious and volcanic assemblage located just south of Bearpaw Mountain. Before leaving the Forest, the geology is classed as upper volcanic rocks and this type extends throughout the remainder of Dorsey Creek and the greater part of southern Idaho (One-million Scale Geologic Map of Nevada, 1977).

WATER STATUS: Dorsey Creek was a losing stream on the Forest that went from 0.200 cfs as measured at SS-5 and SS-3 to 0.128 cfs at SS-2 to 0.063 cfs at SS-1. Streamflow was "low" during the survey. Snowpack conditions in the Snake River Basin were only 26 % of normal during the May 1992, Soil Conservation Service Survey. Streamflow at SS-1 was essentially absent just a month previous.

The channel width to active stream width ratio ranged from 3.7 at SS-1 to 2.0 at SS-3. Stream width to depth ratios ranged from 30 at SS-1 to 65 at SS-4 and averaged 44.3. Maximum stream depths across habitat transects were not much more than four inches. One pool located below T-2 at SS-3 was estimated to be 16 in. deep.

Stream temperature ranged from a afternoon low reading of 56°F to an afternoon high reading of 64°F. Water clarity was recorded as clear at all SS. Water chemistry parameters were measured near the Forest Boundary (see below).

Alkalinity - 188.3 ppm
Hardness - 205.4 ppm
DO - 9.0 ppm
CO^2 - 25.0 ppm
pH - 8.5

The high carbon dioxide reading seems unusual/suspicious considering the normal alkalinity and dissolved oxygen readings. Values above the normal 2.0 ppm may indicate pollution from organic waste[1].

STREAM HABITAT CONDITION INDEX (HCI): The overall, stream HCI was 50.7 percent of optimum or "poor". The lowest rated individual HCI parameter was pool structure wherein, the mean rating was 18.6 percent of optimum. Similarly, the mean pool structure rating through fish sample areas was 21.7 percent of optimum. The best trout habitat conditions were found at SS-3 were the HCI score was 65.7 percent of optimum.

STREAM CHANNEL TYPE AND STABILITY: The lower four SS had a moderate stream gradient that averaged 2.6 % whereas, SS-5 had a gradient of 12.5 %. The streambottom dominated by silt (41%) and gravel (40%). Rubble (15%), Boulders (3%) and other (1%) comprised the remainder of the streambottom beneath habitat transects. Rosgens stream channel classification system indicates that the progression of types in Dorsey Creek as follows: B4, B3, B3, B3, and A3 from bottom to top, respectively.

Stream channel stability evaluations all rated "fair" with a stream average of 96.4. Stability scores generally decreased with descending elevation. Indicators of "poor" stability included the following: lack of vegetative bank protection at SS-1 and SS-2; streambank composition at all SS; streambank cutting at SS-1 and SS-2; bottom size distribution at SS-2; streambottom deposition at SS-1; and a streambottom without aquatic vegetation at most all SS.

RIPARIAN CONDITIONS: Riparian conditions were rated "poor" at the lower two SS; "fair" at the two middle SS; and "very poor" at SS-5. Willow was present at relatively low densities along the entire surveyed portion of stream. Willow was co-dominate with alder and aspen at SS-3 and SS-4. Woods rose was present at a low density. Understory vegetation was composed of mostly annual grass and forbs. Bare ground was most noticeable at SS-1, SS-5 and SS-4. Sedge plants were present at a low density only at SS-2.

Streamside cover provided the water a mean canopy of 43 %. Canopy cover was greatest at SS-3 and SS-4 wherein, 87 % of the stream was covered. Elsewhere, canopy density only averaged 14 %. Riparian area width ranged from 33 ft. at SS-5 to 322 ft. at SS-2. The mean with was 110 ft.

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[1] Leitritz, E. and R. C. Lewis. Trout and Salmon Culture (Hatchery Methods) California Department of Fish and Game. Fish Bulletin 164, 1976, p.13.

HABITAT VULNERABILITY: The Index of Habitat Vulnerbility (HVI) to management activities was "high" at SS-1 and "moderate" at all other SS. Streambank sensitivity ratings as determined from the combined stream channel stability scores for upperbank vegetative protection and lowerbank rock content averaged a score of 16 (13-20. A score of >13 indicates that one season of moderate livestock grazing can result in damaged streambanks. Ungulate streambank damage ranged from 12.5 % or "light" at SS-3 to 72.5 % or "heavy" at SS-5. The average ungulate damage rating was 50.2 % or "heavy". Undercut streambank frequency was highest (60 %) at SS-3 where, ungulate streambank damage was "light". Elsewhere, the undercut bank frequency averaged just 5.3 %. Utilization of riparian, grasses had a closely mowed appearance thus, indicating "extreme use". Even rose shrubs had been browsed.

Streambottom embeddedness ratings were "moderate" at the three upper SS and "heavy" at the two lower SS. The overall, mean stream embeddedness was 46 %.

FISH POPULATION: No fish were captured or seen inhabiting the surveyed portion of Dorsey Creek. Areas examined ocularly for fish included the mile of stream course below the Forest Boundary where several beaver ponds existed.

There are no previously recorded fish population work completed on Dorsey Creek. In addition, no angler contacts have been conducted and recorded for Dorsey Creek. There are no records of fish having been stocked in Dorsey Creek.

AQUATIC FAUNA AND FLORA: Mayflies were found throughout the length of stream however, there relative abundance ranged from "abundant" at SS-5 where three species were noted, to "rare" occurrence at the lower two SS where only one species was seen. Mayflies were "common" at the middle two SS. Caddisfly larvae were "common" at the upper two SS and only "occasionally" found elsewhere. Stonefly larvae "rare" to "occasional" in the stream as where aquatic beetles at all SS except, at SS-5 where, both were absent. Planaria were "abundant" at SS-5, "occasional" at SS-4 and "rare" at SS-3 which could well indicate organic enrichment. Aquatic fly larvae/pupae were only present at the lower two SS, where their abundance ranged from "rare" to "common" at SS-1 and SS-2, respectively. Snails and water striders were "occasionally" found only at SS-1. Earthworms were "rare" at SS-3. Dragon fly adults were seen flying about at SS-5.
There was a trace of algae at SS-2 and a trace of moss at SS-5. Liverworts were seen at SS-3. A semi-aquatic grass-like plant was present along portions of the stream margin at three SS.

BEAVER STATUS: No sign of active beaver use was evident on the Forest and the pond series below the Forest Boundary appeared to be inactive. Limited aspen and willow along the Forest portion of

Dorsey Creek would not serve a beaver colony well despite, the suitable stream gradient and valley bottom width in areas.

CONCLUSIONS

STREAM'S IMPORTANCE: Dorsey Creek provides a water source for area wildlife and livestock.

ISSUES AND CONCERNS: The Forest portion of stream is receiving excessive livestock use that is damaging the streambanks, causing streambed sedimentation, nutrient loading and preventing optimum riparian conditions.

The Forest Boundary fenceline across the stream is incapable of preventing cattle movement.

The Forest exclosure pasture fence has not been maintained to prevent use of the pasture.

Upland shrubs were dead in an area below SS-5 and at SS-3. The cause for the mortalities could not be discerned although, past herbicidal spraying could have caused the condition.

Heavy machinery had been used to modify the stream channel at SS-2 to allow accumulation of a pond for cattle watering.

RECOMMENDATIONS: The Buck Creek C&H Allotment management should be revised to allow for improvement of riparian and stream conditions.

Fence maintenance needs to be improved.

The portion of Dorsey Creek below the Forest Boundary could be surveyed to ascertain stream conditions and fish status.